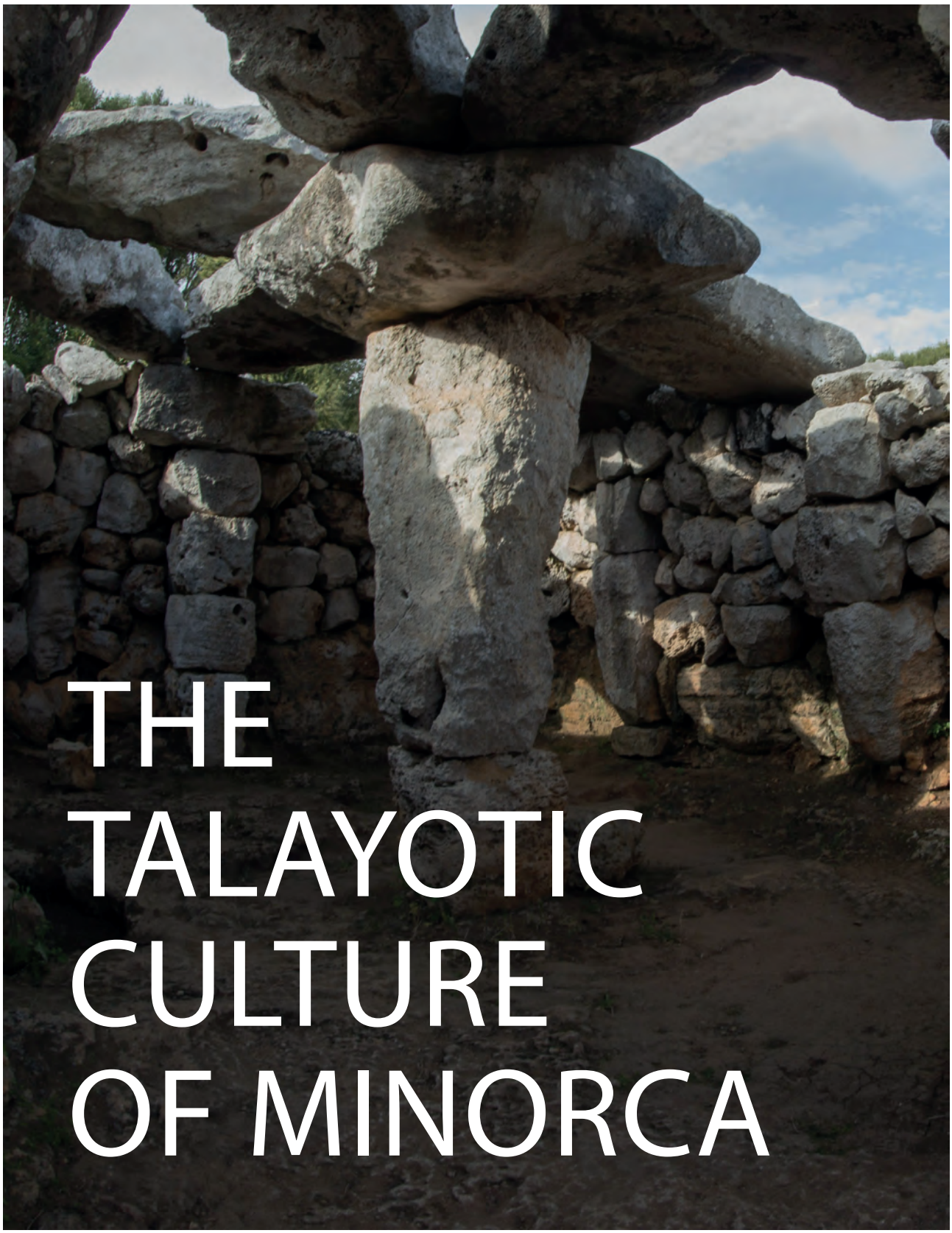

THE TALAYOTIC CULTURE OF MINORCA

CONSELL INSULAR
DE MENORCA

TALAYOTIC MINORCA
World Heritage Nomination

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SUMMARY

The Talayotic culture of Minorca (TCMi) is characterised by a series of features which were shared by all the human groups who inhabited this island between the end of the second and the end of the first millennium BC. Most of these cultural traits are unique to this island as the result of the evolution, isolation conditions, behaviours and beliefs of the first Chalcolithic settlers who arrived to Minorca from continental regions. The way in which these traits fit together in this society, which is also unique to Minorca, formed a coherent and unitary structure which was adapted to the territory and the environmental conditions of the island.

The word talayot, from which the Talayotic culture takes its name, is an augmentative of talaia, which is a Catalan term meaning tower or watchtower. It is a popular word that has been traditionally used to refer to the large cyclopean construction of this culture.

The Talayotic culture emerged in the Late Bronze Age, that is to say, during the last centuries of the second millennium BC. Even though this social change coincided with a period of social instability in much of the Mediterranean, between the end of the 13th and the beginning of the 12th centuries BC, the available evidence suggests that internal social dynamics, and not external influences, caused the birth of this culture.

The economy of the Talayotic culture of Minorca was based on agriculture and, above all, animal husbandry, and this is reflected in the distribution of the settlements on the insular territory. Most of them are found at the southern half of the island, where the most fertile lands are located. One of the most characteristic traits of these communities is the mass use of monumental architecture, which was always based on the cyclopean technique. The monumentalisation of spaces, either constructed or excavated, is not only found in structures built for the living, but also in the funerary ones. Nonetheless, these are two types of spaces that are both spatially and typologically differentiated.

The end of the TCMi took place with the incorporation of the island to the Roman world, which, according to classical written sources, took place in 123 BC. During this long period which predates the Roman conquest, a series of cultural traits did not changed over time and, consequently, formed part of the same culture: agricultural and livestock farming, the continuity in the occupation of the same settlements, the use of monumental cyclopean architecture, the collective inhumation funerary rituals, pottery manufacturing techniques and the typology of manual grinding stones and other tools for the processing of food.

However, Minorca was not completely isolated from the outside world. Products arrived to the island at the beginning of this period which suggests contacts with far-off places, and in the Iron Age these contacts gradually increased with the arrival of new elements from the Phoeno-Punic world: imported pottery, faunal species and new products. It should be noted that the arrival of these elements barely implied the adoption of new production techniques. In this way, despite the massive introduction of wheel-thrown pottery since the 4th century BC, local communities continued to handmade their pottery vessels. One of the few technologies which were adopted by local communities, as the result of contacts with the Phoenician world, was the use of loom weights. These contacts are related to an increasing militarization of part of the society, as literary sources mentioned the fame of the slingshot warriors from the Gymnesian islands (Minorca and Mallorca) and their activity as mercenaries of Carthage since the late 5th century BC. There is evidence of religious syncretism as some objects indicate, such as the two representations of Punic goddess Tanit, which were found in the sanctuary of Torralba d'en Salort, and a bronze statuette of Egyptian god Imhotep, which was located in Torre d'en Galmés.

This progressive influence enables researchers to differentiate two important chronological phases in the TCMi: the Early Talayotic period (circa 1200-500 BC) and the Late Talayotic period (circa 500-1st century BC). The talayot is the most characteristic architectural element of the first phase. Talayots are large truncate-shaped constructions that represented the power of the community or part of it, which visually dominated over the agricultural and pasture lands which surrounded the settlements, and were also meant to be seen from neighbouring settlements. During the second phase they continued to be the most conspicuous visual elements in the settlements, even though presumably they were no longer built. In this second phase the construction efforts were concentrated on the dwellings and the religious buildings known as taula enclosures.

Due to this chronological development, the same settlements present a set of characteristic elements, although not all of them were built synchronously. Talayots were built at the centre and the highest parts of the settlements. They usually have buildings which are abutting them, which were also public and monumental and whose functions were related to economic and productive activities. In the second chronological phase taula enclosures were usually placed in a central position within the settlements, and sometimes they were built over older constructions. Domestic spaces evolved into dwellings with a circular layout and a central courtyard, which were organised around the centre of the settlements. Hypostyle halls, which were used as food storages and cattle sheds, usually adjoin these circular houses. Most of the settlements have outer defence walls which date back to the Late Talayotic period and are related to the increasing bellicosity of this phase. Despite the external influences, the construction technique of this last phase is still indigenous, with the massive use of cyclopean stone blocks. In some of the most recent dwellings, cyclopeism is interpreted as a cultural reaffirmation in a context of emerging acculturation.

Regarding the funerary world, it is worth mentioning its monumentality, the cyclopean technique in the constructed spaces and the physical separation between these spaces and habitat zones. Even though new typologies of funerary spaces appeared throughout the TCMi, some aspects did not changed until Roman times, such as the collective inhumation ritual, which could have represented the legacy of the preceding culture. The elongated funerary navetas are typical constructions of the beginning of the TCMi and were already built at the end of the previous period. Natural caves with a cyclopean wall at the entrance were also used in this phase. Underground cavities were used all over the Talayotic period, although from the beginning of the first millennium BC onwards these were not natural spaces any longer, but rock-cut tombs that increasingly presented more complex layouts. In both cases they were located in coastal cliffs and ravines.

Thus, the spaces for the living were located in flatlands and hills with a visual communication between settlements, whereas the spaces for the dead were usually located in cliffs and ravines. Therefore, both worlds were separated from each other by a certain distance and, possibly, the Talayotic communities chose locations from where visual communication between the two was difficult.

1. THE PHYSICAL ENVIRONMENT

Minorca is the second largest island of the Balearic archipelago, which is a heterogeneous territory located in the western Mediterranean formed by four main islands grouped in two sub-archipelagos. The so-called Gymnesian islands are Mallorca, with an extension of 3640 km2, and Minorca, with only 702 km2 and a set of orographic features, including a mild topography, which differ to the ones of Mallorca. There is a distance of 35 km between the two islands.

In terms of its geology, Minorca is divided in two clearly distinct parts (Fig 1). The south is composed of highly porous Miocenic calcarenite which allows for rainwater filtration into the subsoil. The north is formed by older geological materials from the Palaeozoic, Triassic and Jurassic periods, which retain rainwater in the surface, which causes large seasonal wetlands. Most of these areas remained unsuitable for farming practices until they were drained since the Modern period. This geological division had an effect on the distribution of Prehistoric settlements, with most of them concentrated on the southern half of the island (Fig. 2).

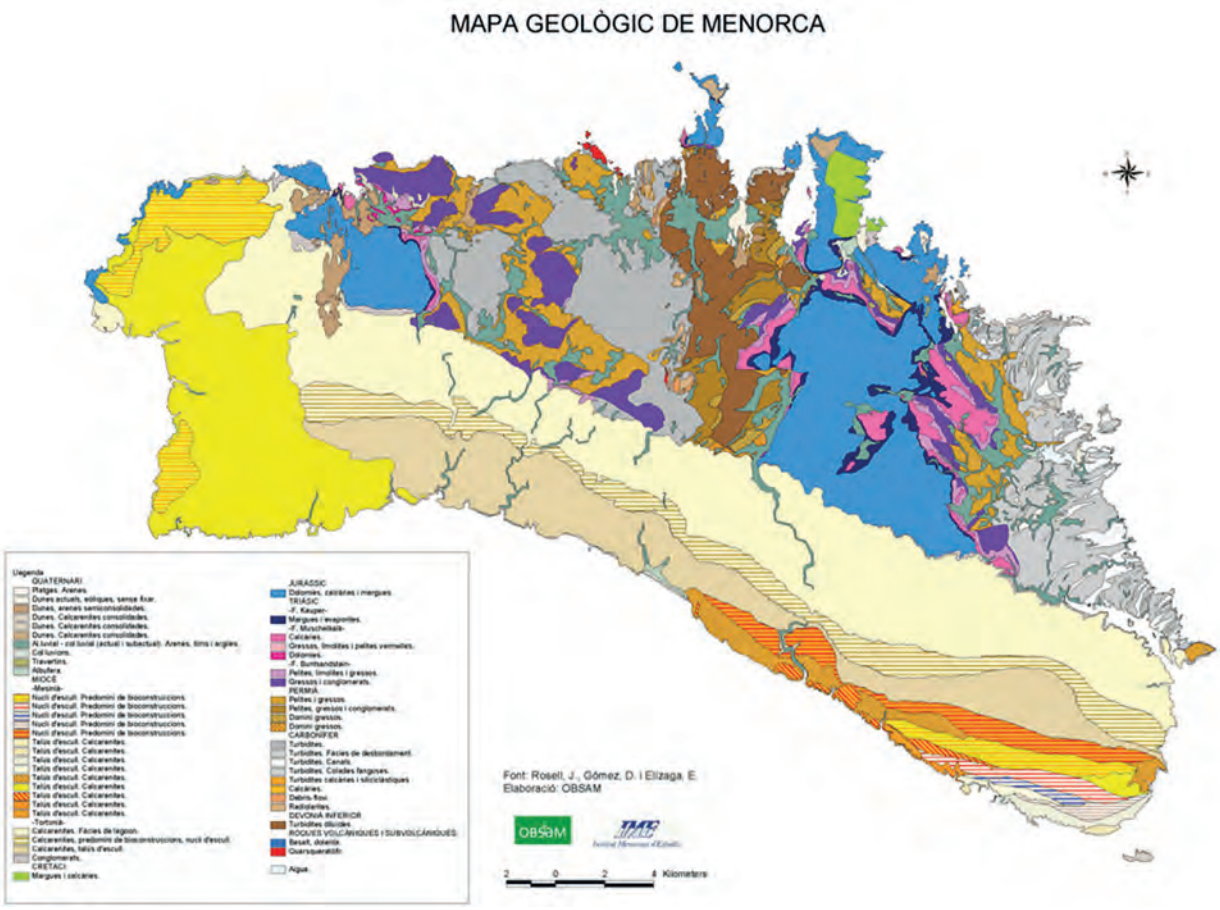

Figure 1

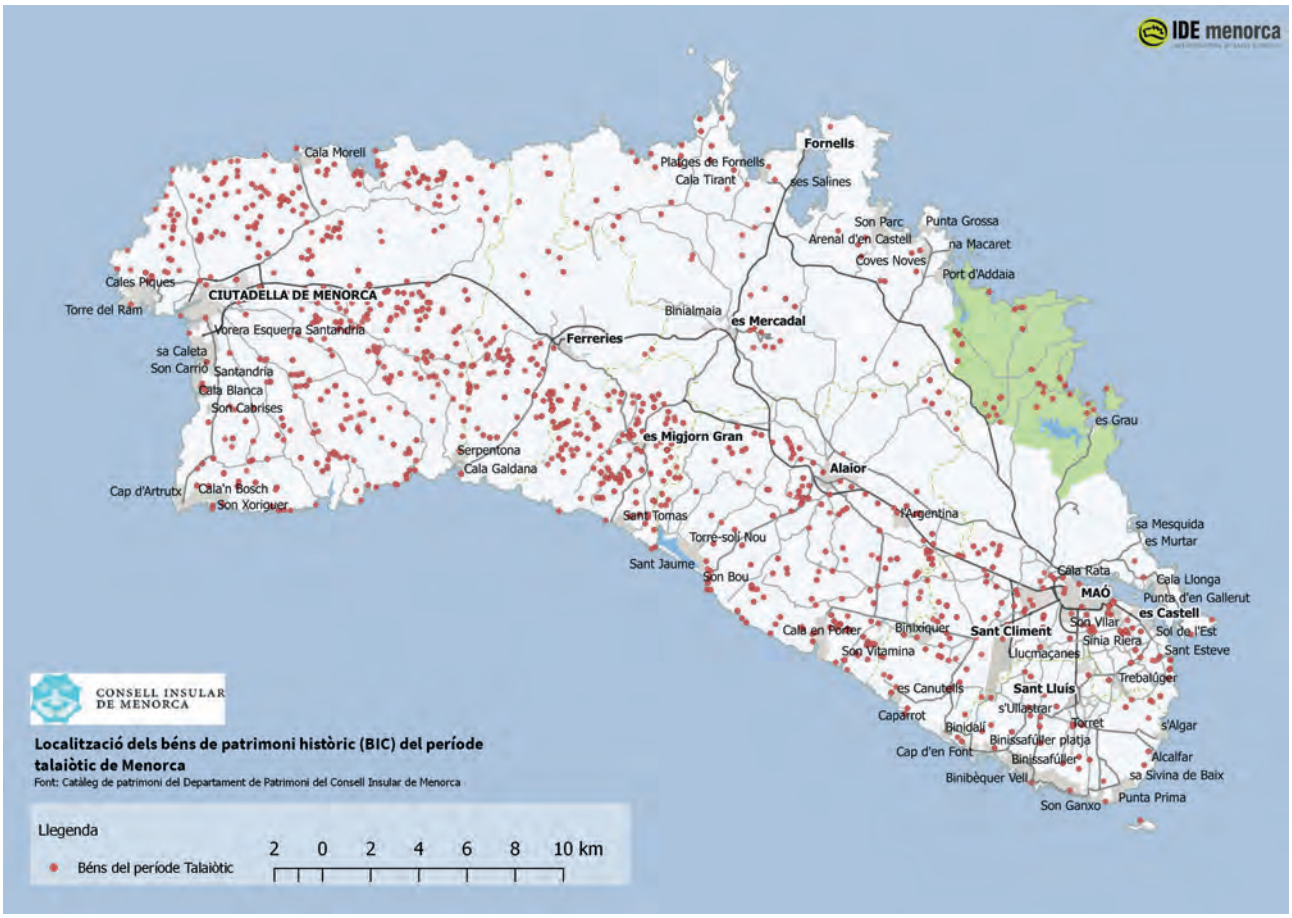

Figure 2

The climate of the island is typically Mediterranean, with warm summers and mild winters. Most of the rain, with about 600 l/m2 per year, falls in autumn and winter, which causes dryland farming being unfeasible and problems in cattle feeding in summer. It should be pointed out that Minorca barely has permanent water courses or other superficial water sources. Weather conditions in the first century BC were not substantially different from present-day ones.

Minorca is a singular territory due to its high level of isolation, with the shortest distance from the continent being approximately 200 km. This factor must have determined to some extent the late human occupation of the island in an indeterminate moment around the 3rd millennium BC. In this way, Minorca, as the rest of the Balearics, was the last large Mediterranean region to be colonized.

2. CHRONOLOGY AND BACKGROUND

Even though there is not an unanimous agreement among researchers about chronological aspects, as is usual in scientific circles, there are numerous works that situate the beginning of the Talayotic culture of Minorca around 1200 BC (e.g. Castro et al. 1997; Gornés et al. 2004; Coll 2006; Ramis and Santandreu 2011; Anglada et al. 2014b; 2017b). The dates of the fortified headland at Cap de Forma (Depalmas 2014) and the settlement of Cornia Nou (Anglada et al. 2014b) suggest the beginning of the development of public monumental architecture around the 12th century cal BC. Furthermore, radiocarbon analyses have been recently made on samples from the five preserved wild olive wood beams of the roof inside the talayot of Sant Agustí Vell. All the results fell within an approximate chronological range of 1250-1150 cal BC (Anglada et al., in press.). This datum strengthens the suggested chronological framework for the origin of the Talayotic architecture of Minorca.

In the first millennium BC a culture that shared many features with the Talayotic culture of Minorca was developed in Mallorca. The cultures of both islands have traditionally received the same name due to the superficial external similarities of the cyclopean truncate-shaped towers which are found in the two. However, the first architectural elements of the Talayotic culture of Mallorca present chronologies which are slightly more recent than the Minorcan ones. This is the case of the stepped platform of Can Sec, whose use was dated to the 11th century cal BC (Aramburu-Zabala 2013). Moreover, the talayots of Mallorca which have been excavated up to this time do not present dates older than the 9th century cal BC.

The somewhat marginal continuity in the use of some dwelling navetas in later stages in Mallorca, along with the slightly recent chronology for the Talayotic monuments on the same island, suggest an older origin for the Talayotic culture of Minorca.

The Talayotic culture did not emerged in the Pityusic islands. In fact, it has been suggested that these islands could have been depopulated at the end of the second or the early first millennium cal BC, until they were colonised by the Phoenicians in the 7th century BC (e.g. Dawson 2008). However, there is an increasing evidence for the continuity of their occupation during the Late Bronze Age, especially in Formentera (e.g., Ramon and Colomar 2010), although there was not a similar cultural change as the one that gave birth to the Talayotic cultures of Mallorca and Minorca.

Regarding the factors that caused the emergence of the Talayotic culture of Minorca, the traditional diffusion theories (e.g. Plantalamor 1991) have lost acceptance in the last decades in favour of proposals that emphasise the role of local elements in the emergence of the Talayotic world (e.g. Fernández Miranda 1991; Lull et al. 1999). In general, the archaeological record shows many elements of continuity between the two periods, such as the pottery typology and the funerary world. Even though the causes of this cultural changed are far from being understood, it seems that there were two key factors: a notable demographic growth and a slight increase of the external contacts (e.g. Ramis 2014).

As for the end of the Early Talayotic period, there is a broader consensus on the topic by situating it in the middle of the first millennium BC, when contacts with the outside world started to intensify. During this period a new type of local monumental construction was built: the house or circle with a central courtyard, which rapidly expanded all over the island, where it lasted until the Roman conquest.

With respect to the precedents of what we know as the Talayotic culture of Minorca, the first stage of the Prehistory of the island, the Early Bronze Age (circa 2500/2300-1700/1600 cal BC), started with the arrival of the first human communities in an indeterminate moment during the third millennium BC. This is defined as a phase of colonisation in which most of the material culture shows clear similarities with the probable regions of origin of the first settlers, especially the eastern Pyrenean area and Languedoc. The basis for the later development of monumental architecture in the funerary world can be found in this first phase. The second phase, which took place in the Middle Bronze Age (circa 1700/1600-1200 cal BC), shows a marked continuity of the previous one. The consolidation of the occupation of the island took place in this phase, with the emergence and development of the fist autochthonous culture. This can be seen in the monumentality of the domestic structures, the navetas, which were the characteristic houses of Minorca during this period. In this way, the settlements of dwelling navetas of various sizes appeared on the island, although no signs of urban planning can be seen in any of them.

The available evidence suggests that there was a gradual collapse of the society of the dwelling-naveta settlements in Minorca around the last quarter of the second millennium cal BC. For instance, in Cala Morell the evidence points to the abandonment, at least of some parts, of the settlement in this moment (Anglada et al. 2017b). The communities of Minorca and Mallorca, which up to that time belonged to the same cultural context, rapidly diverged as the Talayotic cultures of the two islands emerged.

3. ECONOMIC ACTIVITIES AND ARTISANAL PRODUCTIONS

3.1. Agriculture and animal husbandry

Evidence points to a mixed farming system of the Talayotic communities (e.g. Hernández-Gasch et al. 2002). Livestock farming was mainly based on breeding sheep and goats, followed by a variable representation of cattle, whereas pigs are usually the less represented domestic mammals of the studied faunal assemblages. Contrary to what happened in the previous period, at the beginning of the Talayotic period a main change in the livestock management took place, which consisted in a certain degree of intensification of livestock farming strategies in which a major interest was placed in the production of derivatives (e.g. Ramis 2006; 2017; Hernández-Gasch et al. 2011). As happened during the previous period, the use of marine resources was practically non-existent through all the period that covers the Talayotic culture. This trend only started to change at a slow pace with the arrival of cultural influences from the Punic world during the last centuries of the first millennium cal BC.

Changes in the relationships between Talayotic communities and the animal world gradually intensified since the second half of the first millennium cal BC. New species continued being introduced, which can be clearly related, at least in some cases, to economic activities, as in the case of the donkey and its use as a draft animal. Besides the introduction of new species, faunal changes occurred in Minorca with the arrival of new varieties of sheep, and maybe also cow, of larger dimensions than the ones that already lived on the island. This fact, along with the use of horses for animal draught, might have meant significant changes in the food production of some communities.

Regarding the exploitation of plant resources, data is very scarce and do not allow for a global interpretation. Thus, the archaeobotanical record shows that human groups on the Balearics grew non-irrigated crops such as cereals and legumes.

The exploitation of geological resources was also important. It is worth mentioning the use of several types of rocks from the northern part of the island to make tools such as hammerstones and grinding stones. Moreover, copper mining took place in an islet located off the northeast coast of Minorca (Hunt et al., 2014). Even though the available dates for this activity belonged to the previous phase, it is more than likely that it continued taking place during the Talayotic period.

As for water resources, the available evidence points to a water supplying consisting in rainwater harvesting in large rock-hewn cisterns. Given that there is no evidence of irrigation farming, water consumption of the Talayotic communities might have been low.

3.2. Elaboration of goods
3.2.1. Pottery

The Talayotic pottery of Minorca is very distinctive, since vessels were handmade by using the coiling method and had calcareous tempers, which can be easily detected in the fabrics. Vessels present a range of tonalities due to their direct contact with fire during the firing process. During the Late Talayotic period the continuing use of calcite marked a clear difference with the contemporaneous pottery of Mallorca, where the use of vegetal tempers became widespread (Lull et al. 2008).

Some pottery productions were spatulated, polished and/or smoothed, depending on the function of the vessels. Decorative elements are frequent in Talayotic pottery, most of them being incisions with schematic or geometric designs (with sets of repeated figures such as circles, herringbones, nail impressions, etc.), or plastic elements such as lugs and ribs. The profusion of decorative patterns increased in the Late Talayotic period, especially with the introduction of new elements such as panels that decorated truncated-shaped cups and double-bottomed vessels produced during this phase. There are very few vessels of these typologies which still preserve the same geometric patterns mentioned above, but painted.
The pottery typologies fell on three types of basic activities for an agrarian society: storage containers, pots of various sizes and uses for cooking and cups, bowls and plates for the service of food and drinks for their consumption (Anglada et al. 2017c). During the first millennium BC typologies were the same although new variations were introduced, especially since 600/500 BC. This was due to contacts with the Punic world, which caused the imitation, although by using the indigenous techniques, of some imported productions.
Keeping the same basic pottery types over time shows a marked continuity in the customs and traditions of the Talayotic period, despite the introduction of new products and dietary practices (Anglada et al. 2017c).

Figure 3

Pottery objects, along with its contents, are also found in funerary contexts, since they were part of the grave goods that accompanied the dead to the afterlife.
Finally, one of the most distinguished typologies of the Minorcan Talayotic world (Sastre 1985) is the high-bottomed cup (vaso de fondo alto), which was used for ritual and funerary purposes and probably used to burn aromatic plants (Fig. 3).

3.2. Elaboration of goods
3.2.2. Metallurgy

Between the end of the second millennium BC and the beginning of the 1st millennium BC, the use of bronze as an alloy became widespread and production techniques improved, including the use of bivalve moulds or the lost wax method (Lull et al. 1999), all of which allowed for the manufacturing of objects which were more complex than the ones made during the Pretalayotic period (Delibes and Fernández-Miranda 1988). The low presence of iron probably seems to indicate the continuity in the use of the vessel-kiln technique (Rovira et al. 1991).

As a result, the range of types of metal objects broadened (tools, weapons, ornaments, etc.), whose production lasted until approximately the 7th century cal BC (Montero et al. 2005). Some preserved metal assemblages which were located in funerary contexts show the wealth and diversity of metal grave goods of this chronology, such as the grave goods found in a funerary cave with a cyclopean outer wall at Biniguardó, which included spearheads, chest plates, torques, cup-shaped elements and bracelets (Anglada et al. 2014) (Fig. 4 and 5), as well as objects from simple-layout or Type I artificial caves, which date back to the 9th and the 8th centuries cal BC (Veny 1982; Montero et al. 2005). The presence of singular objects such as mirrors, blades or spiked belts, shows the importance of the indigenous creations (Lull et al. 1999), although some models might have been imported from central European lands (Delibes and Fernández-Miranda 1988). Furthermore, the importation of tin, which cannot be found on the island, shows exchange relationships with the outside world.

Figure 4

Figure 5

The first lead and iron objects date back to the beginning of the 1st millennium cal BC, and these were metals which were mostly used for making tools, utensils and ornaments during the Late Talayotic period of Minorca (600/500 – 1st century BC). Despite this, bronze was also used to produce objects that had a symbolic meaning, such as the statuette of a bull located inside the taula enclosure of Torralba d'en Salort (Fernández Miranda 2009) and the Mars Balearicus, which are bronze representations of warriors (Gual 1993).

3.2. Elaboration of goods
3.2.3. Lithic industry

Most of the bone objects were related to domestic activities. Regarding the raw material, through the 1st millennium cal BC, compacted Palaeozoic and Mesozoic sands from the northern part of the island were used. Local hard Miocenic calcarenites were also used to make mortars (Anglada et al. 2017). The most characteristic object of the Prehistory of Minorca, especially in the Talayotic period due to its abundancy and high representation on sites, is the manual grinding stone (Fig. 6). Its function as a grinding tool has been attested with analyses of plant microremains (e.g. Portillo et al. 2014) and its association with other elements such as mortars for threshing grain and carbonised cereals (Anglada et al. 2011). During the Late Talayotic grinding stones continued presenting the same morphology as in previous phases: they are large tools with a dorsal crest to easily move it back and forth during the grinding process, although in this phase grinding stones had bulges on their ends instead of a continuous crest or nerve (Ferrer 2011).

There were other elements whose shape was also determined by their function (food processing, leather processing, tool making, construction tasks, mining, etc.), such as polishers, hammerstones, sharpeners, etc. Most of them were worked objects made from hard rocks which had suitable dimensions for their handling. Other lithic objects were stone mortars, whose function has been determined in other geographical locations as tools for the cereal threshing and dehusking (Alonso 1999).

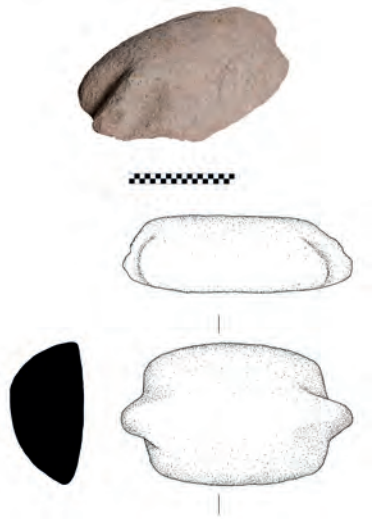

Figure 6

3.2. Elaboration of goods
3.2.3. Bone industry

The most abundant type of object made from animal bone in the Talayotic culture of Minorca is the awl (Fig.7). Awls were made from fragments of long bones of sheep, goats or oxen. They have a pointed end which was sharpened through abrasion, whereas the opposite end, which is sometimes worked, was used as a handle. Its function could have been related to leather working, basketry, carpentry or pottery manufacturing. The use of bone awls is also documented in textile production and grafting.
Other bone tools were needles, which were also related to the manufacturing of textiles as well as for clothing fastening, and spatulas made from bovine scapulae, which could have had different domestic functions (Anglada et al. 2014a).

Other bone elements are typically recorded in funerary contexts. For instance, buttons and lids, which sometimes present decorative designs, are usually found in Early Talayotic cave burials, where they formed part of small ritual deposits. As for the Late Talayotic burials, the most characteristic bone objects are taps ("lids" in English). This is an object made from the proximal end of a bovine femur, which is either truncate or pyramid shaped, with a variable number of sides in the latter case, and whose base is slightly convex.

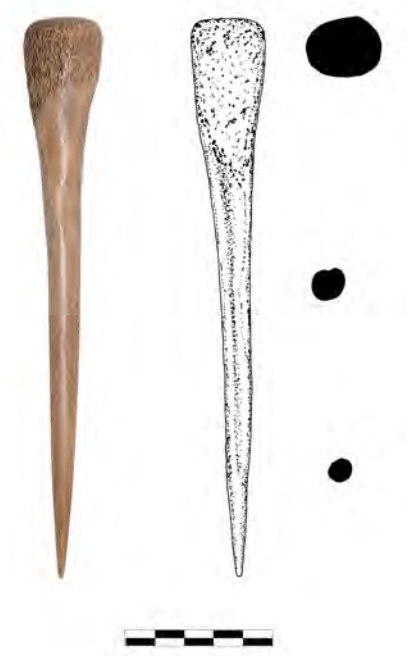

Figure 7

3.3. Trade and mercenary activity

Despite the isolation of Minorcan Talayotic communities, there were always commercial contacts with the outside world. Besides tin, which was a necessary metal that could not be found on Minorca and which was necessary to produce bronze objects, other materials arrived to the island. Some of them are faience beads of the type I.A.1b Barrel Disc (Beck, 1928), which are usually located in funerary contexts dating back to the end of the second and early first millennium cal BC, such as those at the caves LIV and LVI from Cales Coves (Veny, 1982) or the hypogeum XXI from the same necropolis (Gornés et al., 2006), the cave known as cova des Càrritx (Lull et al., 1999) and Biniguardó cave (Anglada et al., 2013). These objects were produced outside the island, although their centres of production have not been clearly identified yet (Martínez & Vilaplana, 2014). Other significant finds made from an imported raw material are two elephant ivory objects, which date back to the beginning of the first millennium cal BC, and were located in the cave called cova des Mussol.

Classical written sources mention the participation of mercenaries from the Gymnesian islands in the Carthaginian campaigns from the 5th century BC onwards. This military activity is undoubtedly linked to the arrival of imported goods such as wine amphorae and drinking vessels, all of which are found in contexts that date from these chronologies in Minorcan Talayotic settlements (Castrillo 2005). These could have been prestige goods which were introduced in a highly hierarchical society (Guerrero et alii, 2006), although other authors consider that wine consumption was already widespread in Minorca, which suggests that this product would not have functioned as a status symbol. Be that as it may, the massive arrival of imported products since the 4th century BC had an impact on the Talayotic communities of Minorca, and had to do with the social changes which took place in this phase.

4. SOCIETY AND RITUAL ASPECTS

Regarding social organization, most authors suggest an increasing inequality (e.g. Coll 1997; Hernández-Gasch 1998; Castro et al. 2003). There has been a huge debate among scholars about the connection between monumental architecture and processes of social inequality in Prehistoric societies in the Mediterranean islands (e.g. Webster 1991; Knapp 2009). Related to this, excavations conducted in the western sector of Cornia Nou shed light on the processes of social change at the beginning of the Talayotic culture. Cornia Nou has a large talayot surrounded by two rectangular monumental structures: the west and south buildings. A large quantity of pottery vessels were found inside the latter, most of them being large containers, although a set of small truncate-shaped cups, which were possibly used in ritual activities in this space, was also located. Many carbonised cereals and bones of domestic animals, most of them being goats and oxen and with a more reduced representation of pigs, were also located. Also, a tremendous number of food-processing tools (grinding stones, stone mortars, hammerstones, bone awl and spatulas) were located in the same building. All this suggests that the activities carried out in this building were possibly related to the processing of food and other products, with or without a ritual component. In this way, this building could have been a centre for the processing, storage and redistribution of these products. In this sense, the materials located inside the building indicate a more complex social organization of the community in comparison to previous phases, since the accumulation of tools points to a centralised production system that surpasses the domestic or familiar scope.

Moreover, the main features the west talayot at Cornia Nou has, such as the monumental staircase that leads to the top platform, suggest that this building could have been used as a space where representations of power were carried out by certain individuals or sectors of the population. Food processing and storage functions could have been controlled by these people who had a preeminent status within their society. (Anglada et al. 2012).

The religion of the Talayotic communities is clearly patent in both funerary and non-funerary spaces. In this way, some natural caves, with limited alterations, had a ritual use in the middle of the second millennium cal BC. This is the case of Cova des Mussol, a cave of difficult access located in a cliff on the northern coast of Ciutadella. After more than two centuries of hiatus without archaeological evidence, Cova des Mussol was used in a second phase, when it was frequented by humans to carry out ceremonies at the end of the second millennium cal BC. The new evidence which can be ascribed to the Talayotic period was found in the deepest parts of the cave. Seventeen wooden objects were located in this area of the cave, including two figurines made of wild olive wood, one with anthropomorphic features representing a human head and the other being zooanthropomorphic (Lull et al. 1999). Small pottery containers used for illumination and dating back At the beginning of the first millennium cal BC the first front room of Cova des Mussol was used for funerary purposes: a minimum number of five adult individuals (three women and two men) and a child were registered. The associated grave goods were small bronze objects placed in cavities from the room walls, including an arrowhead, a chisel and a biconic pendant. Contemporary to this funerary use, the deepest parts of the cave were still used for ritual purposes, as is attested by a deposit of nine bronze objects in the most difficult-access corners of this area. The most singular ones are a mirror, which was located on the surface of the room, a triangular knife with its handle, a chisel and a serrated spearhead. Besides the metal objects, two elephant ivory discs were also found in this context (Lull et al. 1999).

Ritual practices in natural caves ceased in the first millennium cal BC. Taula enclosures, which will be described in the following chapter (Fig. 8), were built in an indeterminate moment around the middle of the first millennium BC. This change probably meant a transformation in the ideological world and the social schemes ofthe Talayotic communities, since cult places were no longer located in hidden and difficult access locations and started to emerge in a central position within the settlements. This monumentalisation of the religious spaces could be related to an increasing connection between religion and ruling groups.

Figure 8

5. ARCHITECTURE

5.1. Architecture of the dwelling spaces

Despite being smaller than Mallorca, the island of Minorca has a higher density of Talayotic monumental elements. In this way, Gornés and Gual (2001) count up to 274 talayots on Minorca. Serra (1965) described the Minorcan talayot as a large truncate-shaped tower which might have had a construction on its top. According to her, this podium was either solid or had an inner chamber or corridor of various typologies. This definition already emphasized the importance of the top platform of the talayots of Minorca (Fig. 9).

Figure 9

Plantalamor (1991) carried out a typological classification of the Minorcan talayots based on three criteria: dimensions, exterior layout and internal organization. Regarding their dimensions, they are either large or medium-sized, depending on the size of their diameter (more or less than 20 meters). Large talayots are abundant at the eastern side of the island and absent in the rest of the territory. The external layout of most of the Menorcan talayots is rounded: circular, oval or semi-circular in those which present a flat façade. Only few are four-sided, but their corners are always rounded. As for the internal organization, Plantalamor (1991) distinguishes a group of talayots whose internal faces follow a horizontal axis formed by corridors and galleries, from another group in which the internal space of the talayots is organised around a central point. This latter group includes the talayots with inner circular chambers where there is a central polylithic column, which were originally covered by radially-arranged stone slabs. This latter type, which is practically absent on Minorca, is the most frequent form of talayot in the neighbouring island.

A more recent study (Demurtas et al. 2012) presents a new simplified classification of the monuments of Menorca in which several types of talayots are differentiated: talayots with a ramp (distinguishing between internal ramps and external ones surrounding the structure), with inner corridors, with elongated

The latter type is only represented by the talayot of Trebalúger, which is defined as an open-area structure composed of an outer cyclopean wall which surrounds an irregular rocky outcrop.

The fortified coastal headland at Cap de Forma has a singular monument that does not correspond with any of the aforementioned categories. This structure, which blocks an isthmus, is not a simple wall but a monumental element that has an oval layout and is apparently solid. Its internal face is abutted by a series of domestic structures (Plantalamor et al. 1999; Depalmas 2014).

A comparison with the also so-called talayots of Mallorca reveals that each island has their own typologies of monuments, only sharing one common point consisting in a certain similarity in their external appearance, being similar to towers of watchtowers. Broadly speaking, Mallorcan talayots have their most significant space in an inner chamber with a central column, whereas the usable area in most of the talayots of Minorca is the top platform. All this implies a very different conception of these monuments in both contexts.

Talayotic monumental buildings were constructed with the cyclopean technique, in which the dry stone walls present larger blocks in the external faces. The monuments which have chambers present internal faces of smaller and more regular or roughly-worked stones, which are usually arranged in courses. The space between the two faces of the walls is filled by small stones. The most distinctive precedent of the construction system which became widespread in the talayots can be found in the dwelling navetas of the previous period. The stones used in the construction of the buildings were always quarried in the surroundings of the settlements, as can be easily seen by observing them. However, only few stone quarries have been identified so far (Serra 1963). Stone blocks were probably quarried by using traditional techniques, such as the use of wooden wedges that would be soaked with water causing the wood to swell and split the rock. The use of fire for quarrying large stone blocks have also been suggested (Kopper and Rosselló-Bordoy 1974). In any case, there is not available information about the tools which were used for the extraction, transportation, cutting and smoothing of the stones.

Nowadays the proposals for the function of the talayots of Minorca is an open question. Some of these buildings were reused in the Late Talayotic period, causing the destruction of their original occupation levels (e.g. Plantalamor et al. 2011). In other cases, the recorded evidence is not conclusive enough to determine a minimally accurate interpretation for the initial use of these constructions.

Regarding the large truncate-shaped talayots, they are usually located in elevated spots, which could be related to the function of marking out not only the domain of the settlement itself but also a broader area (Plantalamor 1991). This aspect will be discussed in section 6 of the present document. During the excavation of the talayot of Biniparratx Petit remains of a dwelling with post holes on its top were documented (Guerrero et al. 2007). This location of the usable area on the upper part is a constant in the vast majority of the talayots of Menorca, which distinguishes them from the ones in Mallorca, whose usable area is usually located at ground level.

It is necessary to collect more data about the Early Talayotic settlements of Minorca to add more information about the monumental elements that have been described above. This scarcity of information shows the importance of the excavation that was conducted in the east sector of Cornia Nou (Fig. 10). This complex is organized around a small fortified hill which is enclosed by a cyclopean outer wall, which is now partially preserved. At the southern edge of the hill there is a circular talayot of small dimensions (around twelve meters in diameter) which abuts the outer wall. This building is crossed by an internal corridor, aspect which suggests an interpretation of this building as a monumental gate to the walled enclosure where the settlement could have been located. This corridor has the considerable height of four meters, the stone courses of both sides project inwards and its cover is made of horizontal slabs which measure one meter wide

approximately. There is a small entrance in the middle of the gallery which leads to a small 2m2 oval chamber through a curved corridor. Thus, it can be affirmed that this talayot had a practical function to some extent, since it seems to represent the fortified gate of the walled enclosure which was located at the highest part of the hill (Plantalamor et al. 2011).

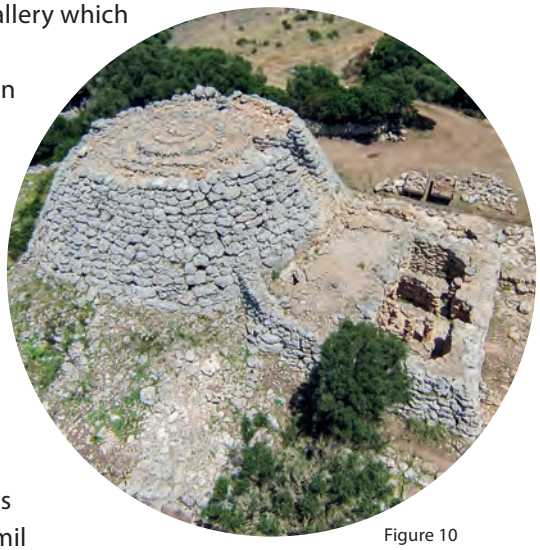

Figure 10

In the Late Talayotic period the evidence about buildings changed, since the construction of a domestic structure called central-courtyard circular dwelling or simply circle became widespread throughout the island (Pons Machado 2016) (Fig. 11 and 12). Several excavations, most of them in the past fifty years, have been conducted in these Minorcan Iron Age circular houses. Even though these buildings were already known by distinguished archaeologists such as Emil Cartailhac (1892), they were not identified as domestic spaces until the middle of the 20th century (Serra 1965). It should be pointed out that these structures are unique to Minorca and are easily identifiable by its circular layout. Most of the Talayotic settlements have these spaces, which were built and used between the 6th and the 1st centuries BC. They are characterised for being monumental houses which are oriented to the south, whose general dimensions rage between 40 and 90 m2. As for their cyclopean walls, these are double-faced, with their external faces presenting a tripartite structure (foundation bench of horizontal bocks, a course of vertical large orthostats and a second course of vertical slabs). The internal face, which is made of smaller stones, has pilasters abutting or embedded into it, which delimit the internal organization of the space (Hernández and Salvá 2009).

Figure 11

Figure 12

This domestic space is organized around a central courtyard, which acted as the centre of the domestic life as several features, such as a hearth, working platforms, fixed mortars and even cisterns, indicate. Moreover, it could have even had a small a domestic ritual altar at its western side (Sintes and Isbert 2009). This courtyard is always surrounded by radially-arranged rooms which were covered by a roof. The roofing system would have consisted in a vegetal cover supported by the exempt columns, which are located at the central courtyard, and the walls. The distribution patterns, dimensions and finds located in these spaces have allowed for a standardised identification of their functions, including resting, storage and working areas (Ferrer et al. 2011). Some of these dwellings are abutted by hypostyle halls, which were monumental structures covered by large stone slabs and whose function was related with storage and livestock shedding.
The usable area in these houses is enlarged by big enclosed outer courtyards, which can present features such as roofed corridors (Talatí de Dalt), small rooms, reused hypogea and hypostyle halls interpreted as storage rooms (Plantalamor 1991; Fernández Miranda 2009; Sintes and Isbert 2009; Carbonell et al. 2015), all of which serves for distinguishing the indoor activities from the tasks developed in these outer spaces (Hernadez and Salvà 2009).

During the second Iron Age the Talayotic settlements of Minorca are of highly variable dimensions (Gornés et al. 2004). This is a notable difference to the contemporary settlements of the Talayotic culture of Mallorca, which tend to occupy an approximate extension of 1 hectare. Contrary to this trend, Menorca has five identified settlements which are larger than five hectares. According to their dimensions, this first limited group is followed by some settlements of an extension ranging from two to three hectares, whereas the biggest group includes settlements which have reduced extensions ranging from 0.5 to 1 hectare.
This phase is also characterized by a religious building known as taula enclosure (Fig. 7). It is a type of edifice which is also unique to the island of Minorca and is located in a central area within the settlements, most of the times near talayots. Taula enclosures are horseshoe-shaped buildings with an entrance located at the centre of their flat façades, which are opposite the apsidal posterior part. Its most distinctive feature is a central column that can be up to five meters high, which is formed by a rectangular orthostat that sustains another stone slab which acts as a capital. The evidence recovered from excavations conducted in some of these enclosures shows that they were used approximately until the turn of the common era. These archaeological excavations have shed light on the ritual practices carried out by the community, which included the consumption of wine and meat. Moreover, a combustion structure is usually located towards the right hand-side of its internal space, which is located near the central monument (Fernández-Miranda y Waldren 1995).

5.2. Architecture of the funerary spaces

There is a wide range of funerary spaces in Minorca since the first stages of its Prehistory (Plantalamor et al. 2012), although the collective inhumation ritual was a constant feature until the end of the Iron Age. In this way, during the initial phases of human occupation of the island, dolmens (Ses Roques Llises, Montplè, etc.) and caves with megalithic façades (Biniai Nou, caves 11 and 12 of Cala Morell) were erected. Rock-hewn elongated hypogea (Torre del Ram, Son Mercer de Dalt) were also made in these first phases, but they are less abundant than the other typologies. After the use of megalithic tombs there was an endemic evolution on the island which started with the triple-walled tombs (Son Olivaret, Ses Arenes de Baix) and continued with the circular-layout navetas (Biniac-L'Argentina) and the elongated navetas (Es Tudons, Rafal Rubí), the latter appearing at the end of the first millennium cal BC (Plantalamor y Marqués 2003; Gili et al. 2006). Thus, besides the talayots, Minorca has a type of Talayotic cyclopean construction with a funerary function, which is the elongated naveta, a unique monument of Minorca with no similar parallels outside the island (Fig. 13). This funerary building was used simultaneously with natural caves and hypogea.

Figure 13

Figure 14

Another type of funerary space which is characteristic of the Talayotic culture of Minorca is the natural cave and the rock shelter with cyclopean walls at the entrance, whose origins also date back to the second half of the second millennium cal BC, and which are usually located in the sides of ravines inland (Fig. 14). The cave of Biniguardó shows that these sites were used at least until the 8th century cal BC (Anglada et al. 2014a). Other examples of these caves are located on the coast, such as Cova des Morts in Mongofre Nou, where the human remains of 300 hundred individuals, who were buried in this cave around the beginning of the first millennium cal BC, were recovered (Bergadà and De Nicolás 2005). An exceptional case is the cave with cyclopean wall of Cova des Càrritx, which was used as a necropolis approximately between 1400 and 800 cal BC, where roughly 35000 human bone remains were recovered. Over this period, even though some changes took place, the rituals and the treatment of the bodies which were carried out inside this cave had a collective nature.

Only were three bodies partially in anatomical connection, whereas the rest of the bones were completely disarticulated, forming a big ossuary. A minimum number of 210 inhumated individuals were determined in this site (Rihuete 2000).

In the first stages of the use of this necropolis, the inhumation practice consisted in placing the bodies, which were wrapped in shrouds in different positions, directly on the floor of the cave. The practice of a secondary burial of the crania took place at the beginning of the first millennium cal BC. The first room of the cave was the area where the primary inhumations were placed, where the process of the soft tissue decomposition took place. The special treatment of the skulls, which has parallels in other necropolis from Mallorca and Menorca, is related to the socioeconomic changes of the period.

An important diversification of burial spaces and funerary rituals appeared during the Iron Age. As for the funerary caves, there is a continuity of the use of some structures which already had a funerary function in previous periods, such as the natural caves with cyclopean walls at the entrance. Furthermore, artificial caves made in previous periods were reused.

Along with these spaces, new necropolis of rock-cut tombs of new typologies, both of simple and polylobed layouts, were made and used. Some of the most characteristic elements in these artificial caves are the exempt columns, which were made by carving out the same geological substratum in which the cave was made. A distinctive element of Minorca is the high concentration of hypogea that form large necropolii, which are located in the sides of ravines and coastal cliffs. The most representative examples of this latter group are in Cap de Forma and Calescoves (Fig. 15), which are located on the coast, as well as in Cala Morell, which is a ravine several hundred meters long located behind the cove of thesame name. In the vast majority of the cases, these necropolii are placed in rocky walls from the Miocenic part of the island.

Figure 15

Veny (1982) did a systematization of the artificial caves or rock-cut tombs of Cales Coves, distinguishing two main typologies. The first is composed of simple-layout caves (either circular or oval layouts), in which the inhumation rituals and the materials located inside date back to the beginning of the first millennium cal BC. The caves from the second group are characterized for having a rectangular entrance. Inside these caves several architectural elements, which are not present in the simple-layout caves, can be found: courtyards at the entrances, sculpted façades, niches or lobes, pilasters and pillars (Fig. 16). The grave goods which are recovered from these burial spaces are typical from the Iron Age and, therefore, they are dated back to the first millennium cal BC. Moreover, in these caves more rituals are usually documented, including the use of quicklime

The hypogeum XXI of Calescoves belongs to this last group, and is the most recent excavated rock-cut tomb from this necropolis. It has a trapezoidal-shaped chamber with a large exempt pillar. The dating evidence situates its use around the second quarter of the first millennium cal BC, which is a slightly older chronology than the chronological framework proposed for these caves in previous lines. Funerary rituals in this cave included remains of wooden stretchers and coffins. Grave goods included pottery vessels as well as iron and bronze objects. An important aspect of this cave was the location of many bovine caudal vertebrae, which suggest the use of oxen tails as funerary offerings. Regarding the human remains, a minimum number of 186 individuals were identified (Gornés et al. 2006).

The cremation ritual was introduced in the funerary worlds of both Minorca and Mallorca in the Iron Age. In these rituals the deceased, along with their grave goods, were placed in a pyre with a concentration of powder of calcareous rocks. This powder was solidified after the cremation process, turning into a quicklime layer that covered the whole assemblage (Van Strydonck et al. 2015). This new practice did not replace the traditional inhumation rituals and both coexisted.

Figure 16

6. LAND OCCUPATION AND LANDSCAPE CONFIGURATION

There is a scarcity of studies on the landscape archaeology of Minorca, which would shed light on the land occupation during the Talayotic period (De Cet et al. 2013, García-Argüelles et al. 1995, Gornés et al. 2004, Juan 1993, Plantalamor & Rita 1984). A study on the topic has been prepared for the drawing up of this document (Galmés 2017), which focuses on the southeast of the island. The orographic configuration of the island of Menorca, most of it being flat, makes it difficult to study distinctive landscape units. However, as has already been mentioned, the settlement pattern analyzed in the case of the talayots located in the southeast, presents a clear visual interconnectivity which generates a network that expands through the east – west axis of the island (Fig. 16).

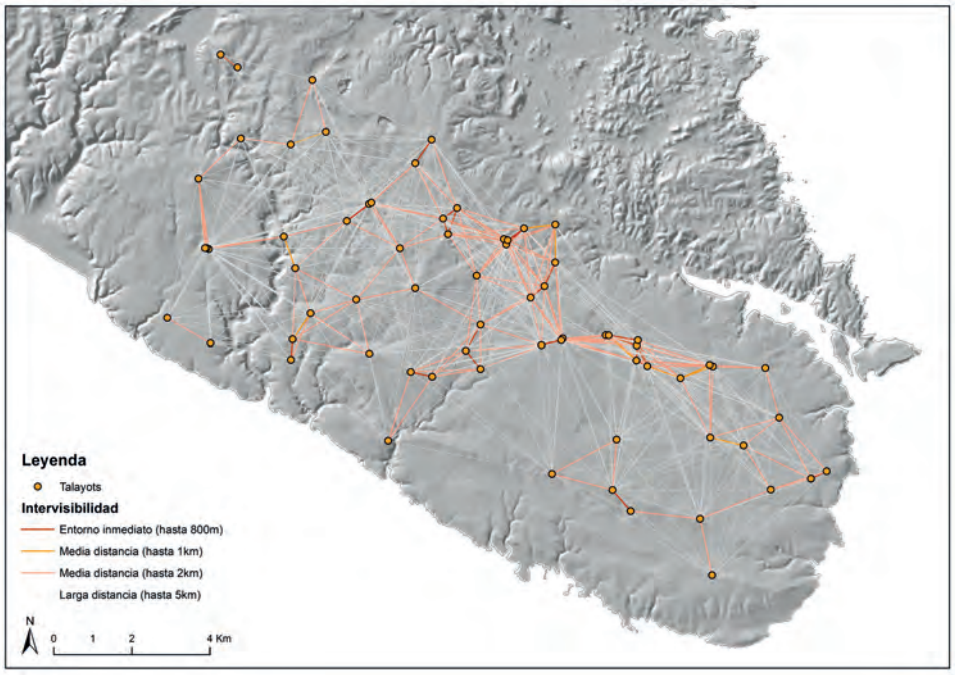

Figure 16

Trepucó is the largest settlement on the southeast of Minorca, controlling the southern area of the port of Maó, even though visibility does not show a special interest in the coast, with the exception of Sant Esteve cove. Here there are two of settlements with talayots which are closer to the coast, as well as some funerary sites. South of this settlement there is the large talayot of Trebalúger, which has a similar viewshed than that of Trepucó, although it allows for expanding the visibility to the south and connecting with the axis of the talayots which are located at the southeast end of the island. This visual connection between Trepucó and Trebalúger could indicate some sort of connection between the two, with the talayot of Trebalúger being the means of communicating with the southeast end of Minorca. Moreover, this talayot could have represented a symbolic nexus within the territory, due the both its large dimensions and the fact that it was built over structures dating from the previous period.

In the axis that expands to the south of the port of Maó, west of Trepucó, there is the site of Sa Cudia Cremada, whose viewshed is more limited than the cases that have just been mentioned, and is primarily focused on a visibility at a short distance. Its close connection to the settlement of Cornia Nou, whose western talayot is more than 10 meters high and has a monumental staircase that leads to its top, stands out. The broad visibility from its top makes it possible to connect with the eastern area of the island that has already been mentioned. However, there is some degree of visual void, which is covered by the talayot of Torellonet Vell, which in turn is connected to the large settlement of Talatí de Dalt. This axis is similar to that connecting Trepucó and Trebalúger due to the presence of a large talayot as a significant visual nexus within the landscape.

The viewshed of Talatí de Dalt is focused on the internal side of the port of Maó and expands towards the ravine of Canutells cove. It is also connected to the settlements of Biniaiet Vell and Cotaina d'en Carreres, from where the connectivity axis branches off to the northwest, with the settlement of Torralba d'en Salort, and to the south, where there is a concentration of settlements which are aligned to the right hand side of the ravine of Canutells cove. These settlements form a viewshed which expands to the southern coast following the line of the ravine and reaching the sea. Regarding the northwest, Torralba d'en Salort seems to be the largest settlement to the west of Cala en Porter ravine. The possible visual gaps at the other side of the ravine are covered by small settlements which are located on elevated areas at the limit of the said ravine.

Finally, Torre d'en Galmés has the most delimited geographical area, which extends to the west of the Cala en Porter ravine. In the first place, of all the analyzed areas, this is the only one where there seems to be some sort of interest in controlling the coast, especially the Son Bou area. Secondly, the hill where the settlement is located has three talayots, even though the viewsheds from each of them do not show significant differences. This could probably imply that it was slightly more important that the settlement and its structures were seen from the outside, rather than the visibility obtained from them. Thus, having the three talayots very close to each other on top of a hill with a great visual domain over the slope that leads to the sea, could be related to the fact that the settlement was easily recognizable while walking in the landscape.

From all what has been exposed in these lines, it is possible to suggest that the talayots form a well-organized visibility system over the landscape, with an east – west axis and other axes that lead to the southern coast. In general, they offer a consistent visibility that covers a medium-sized distance, which gradually fades away to a greater or lesser extent as the distance becomes larger. The studied area presents a consistent pattern in which large settlements of one or more talayots are assembled with smaller ones, which usually present talayots abutted by other constructions, and whose distance from the main settlement ranges from one to three kilometers. The function of the large talayots of Trebalúger and Cornia Nou as connecting elements or nexuses is also very interesting. Moreover, their occupations go back to the start of the Early Talayotic period, as is attested in Cornia Nou (circa 1100-900 BC) (Anglada et al. 2014), whereas in Trebalúger, the talayot was built over a construction dating back to the previous period (Gual et al. 1991). This and the fact that both functioned as limits and visual nexuses between different areas, and are large structures, could mean that, besides being visual features for the control over the landscape, they were related with the social and political significance of it.

It should be noted that from the top of the talayot not only can a portion of the landscape be seen, but also the talayot itself. Thus, its presence should have implied a constant reminder of the social and political context in which these monuments were used. Being visible monuments in the landscape might have served to construct a social narrative of the community through the space (Fig. 17).

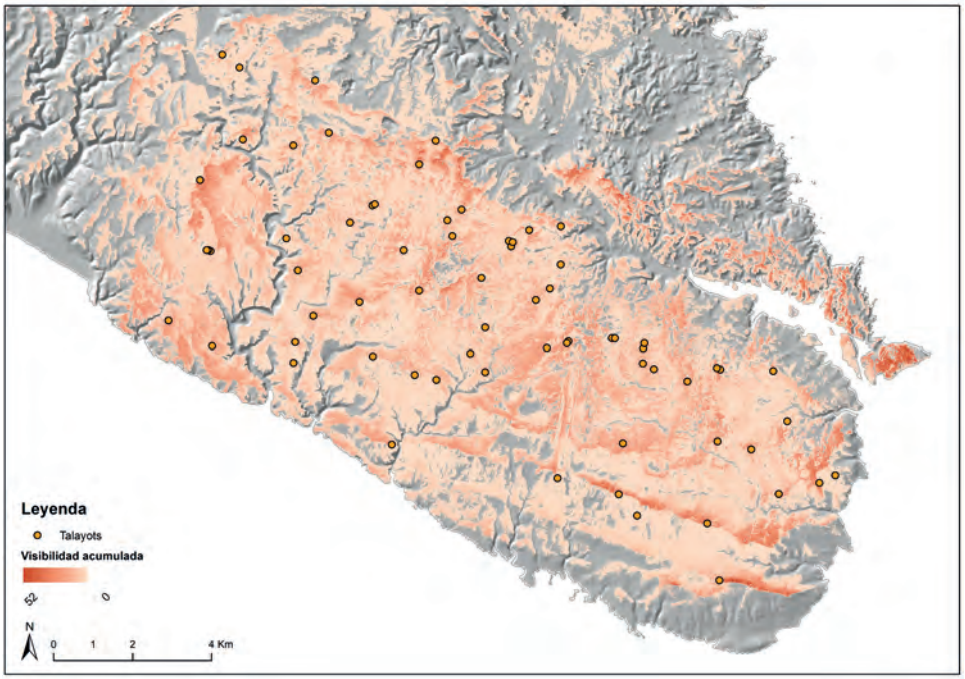

Figure 17

In this way, the settlement pattern forms a constant all over the territory of the southeast of Minorca, creating a series of visual connectivity axes that interconnected the settlements in a repeated pattern. That is why it can be affirmed that the talayots formed a controlled and visually connected landscape. Moreover, their visual preeminence and control over an immediate territory made them become spatial references, which allowed for the mobility around a landscape where two or three of these structures were always visible. In conclusion, the monumental Talayotic architecture of Menorca could have formed a formula which created an enclosed landscape, which was guarded and interconnected, allowing for the visual connection and surveillance of the southeast of the island by means of reference elements, the talayots, which in turn could have been the axes by which the communities that lived Minorca gave a social and political meaning to the landscape.

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